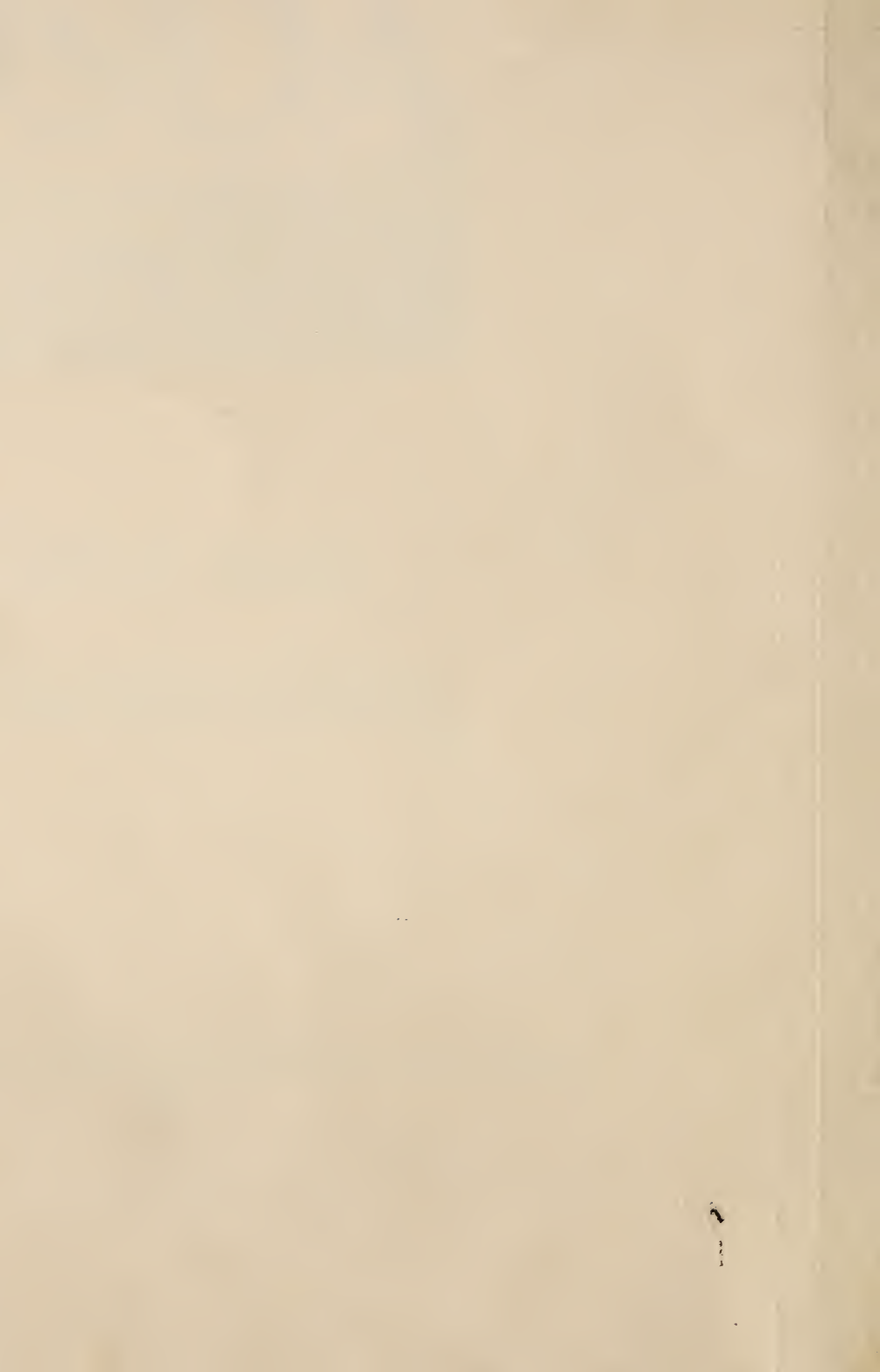


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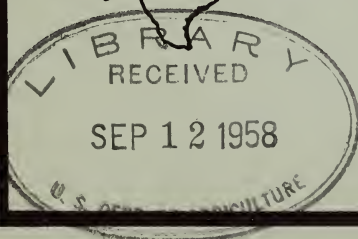
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Basic information on the

DUTIES AND RESPONSIBILITIES

of accredited veterinarians



Agricultural Research Service

U.S. DEPARTMENT OF AGRICULTURE

COMPILED BY
ANIMAL DISEASE ERADICATION DIVISION
AND
ANIMAL INSPECTION & QUARANTINE DIVISION

Issued July 1958

FOREWORD

This material has been prepared as a guide to graduate veterinarians for general information to the profession, as well as a concise reference for accredited veterinarians and for those seeking accreditation.

Educational training prepares the veterinarian for the technical duties he must perform. Other functions, however, such as correct methods of identification of animals, documentations, and bookkeeping necessary for proper accounting to the taxpayers of the country, are contained in this booklet. In order to more fully appreciate the role of the veterinarian, it is only necessary to realize that infectious and communicable diseases cost the livestock owner more than a billion dollars annually. In the struggle to reduce this loss, as far as possible, State and Federal agencies rely heavily on the integrity, training, and capabilities of the accredited veterinarian.

An accredited veterinarian is eligible to participate in State-Federal programs of disease control and to issue certificates for animals intended for export from the United States. Any graduate veterinarian interested in becoming accredited should contact the State Veterinarian or the Federal Veterinarian in Charge of disease control and eradication activities of the State in which accreditation is desired. These officials should be contacted in each additional State where the applicant wishes accreditation since accreditation in one State is not valid in another.

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ANIMAL INSPECTION AND QUARANTINE DIVISION

SECTION I

INTERNATIONAL MOVEMENT OF ANIMALS

EXPORTS

1. Administration of Regulations

The regulations contained in Part 91, Title 9, Code of Federal Regulations - Inspection and Handling of Livestock for Exportation - are administered by:

Animal Inspection and Quarantine Division of the USDA's
Agricultural Research Service, Washington 25, D. C.

2. Purpose

A - to promote foreign trade by insuring, as far as possible that only healthy animals are exported.

B - to provide for humane handling and safe transport.

The provisions of the regulations are minimum export requirements and take precedence over import requirements of foreign countries if the latter are less restrictive.

C - These regulations are contained in Part 91 of Title 9, Code of Federal Regulations, as shown in paragraph No. 1.

3. Animals Governed by Export Regulations

Export regulations of the Department are applicable to cattle, sheep, goats, swine, horses, mules and burros.

When required by the import regulations of the receiving country, certain other animals, poultry, and hatching eggs may be inspected and a health certificate issued.

4. Foreign Import Requirements

Import requirements of the English-speaking countries are fairly well known by the AIQ Division and current information can usually be supplied; however, the requirements of certain other countries are very

difficult to maintain. It is the responsibility of the shipper to obtain information concerning import requirements from the country of destination. Since most foreign countries require that a permit be issued by them before animals may be imported, necessary information relative to a proposed importation can be obtained at the time such permit is requested.

5. Inspection at Origin

Veterinary inspection of animals intended for export must be made on premises of origin by an accredited veterinarian, a full-time State employed veterinarian, or an ARS veterinarian. Test charts and health certificates should be issued in accordance with instructions herein outlined.

6. Test Charts

Test charts are usually State-supplied forms designed especially for recording results of tuberculin and brucellosis tests.

Entries on these charts should be legible and all animals tested for export clearly and individually identified. The numerical figure of the total number of animals eligible for export should be recorded on the face of the chart and a diagonal line drawn across the unused lower portion as a protection to the issuing veterinarian and an assurance that the completed charts cannot be subsequently changed.

Besides the tuberculin and brucellosis tests, some countries require other tests for diseases such as paratuberculosis, anaplasmosis, piroplasmosis, or Q fever. If made, the results of these tests should likewise be clearly shown on these or similar charts.

7. Tuberculin Test

Department regulations require that all dairy and breeding cattle, except calves born after the test of dam, be tuberculin tested with negative results to be eligible for export.

The test must be made within 30 days of the date of shipment from point of origin in the United States to port of export.

Both the tuberculin test and the brucellosis test may be waived by the Director of the Animal Inspection and Quarantine Division when so requested by a responsible official of the country of destination if the Director feels that it can be done without danger to our livestock export trade.

8. Brucellosis Test

A - Nonofficially-vaccinated and unvaccinated cattle (bulls and females) over six months of age must be blood tested for brucellosis with negative results in dilutions of 1:50 and above.

B - Officially vaccinated animal. (A bovine animal of a dairy breed vaccinated against brucellosis from four through eight months of age, or a bovine animal of a beef breed in a range or semirange area, vaccinated against brucellosis from 4 to 12 months of age, under the supervision of a Federal or State veterinary official with a vaccine approved by the Animal Disease Eradication Division, ARS, USDA; permanently identified as such a vaccinee and reported at the time of vaccination to the appropriate State and Federal agencies cooperating in the eradication of brucellosis). Officially vaccinated animals over 30 months of age must be blood tested for brucellosis with negative results in dilutions of 1:100 and above.

NOTE: Canada does not consider an animal of any breed vaccinated officially if done after the day the animal becomes 11 months old.

C - Test must be made within 30 days from date of intended shipment from point of origin in the United States to port of export.

9. Health Certificate

Health certificates should not be confused with test charts. Health certificates record the veterinary health inspection of export animals at point of origin and certify that the necessary diagnostic tests were performed.

The certificate (at least 5 copies) should carry the following or similar statement that the animals listed thereon were free from evidence of communicable disease and exposure thereto. Many State test charts contain a satisfactory printed statement of health; however, the charts of those States not containing this or a similar statement must have such statement typed or otherwise clearly shown before they become recognized health certificates for export purposes.

In addition to the above, these certificates should show any vaccinations or immunizations given immediately prior to shipment at the request of the owner or shipper, with appropriate dosages, dates, etc., clearly indicated thereon.

10. Filling Out Certificates

A - Certificates accompanying animals to port of export shall show proper identification of the animals in the shipment with respect to breed, sex and age and, when applicable, shall also show registration name and number, tattoo markings, tag number, or other natural or acquired markings. Grade sheep or swine in carload lots need not be individually identified, but each lot should be collectively identified as to breeds, ages, sex, etc.

B - Show correct date of issuance of the certificate which should be the same as the date of actual insemination of the animals.

C - Make only true statements. Unsubstantiated statements such as "these animals are free of all diseases" are not acceptable.

D - Names and addresses of consignor and consignee must be shown.

E - Port of export, and country of destination, must be clearly shown.

F - Certificates must carry a statement to the effect that the owner or shipper has been advised that the animals must be conveyed to the port of export in cleaned and disinfected vehicles (see paragraph 12. Transportation).

11. Endorsement of Health Certificates

All copies of the completed certificate, as one of the necessary export requirements, shall be endorsed by the Agricultural Research Service veterinarian in charge in the State of origin, or by another ARS veterinarian so authorized by the Director of Division.

IMPORTANT: All copies of certificates must be legible and complete before they can be properly endorsed.

12. Transportation

The regulations of the Department require that all animals intended for export be moved from premises of origin to port of export in cleaned and disinfected trucks, railroad cars, or other conveyances unless such conveyances were not previously used to transport livestock. Crates must be constructed of new material or if previously

used to transport livestock such crates must first be cleaned and disinfected.

13. Reinspection and Certification at Port of Export

Animals destined to a foreign country are given ARS veterinary inspection at ports of export specified by regulation except that reinspection of livestock destined overland to Canada and Mexico is the responsibility of the salaried veterinarians of the governments of those countries. If the animals are accompanied by properly executed and endorsed health and test certificates and the ARS port veterinarian finds the animals to be free from evidence of communicable disease and exposure thereto, he may issue a specific export certificate to that effect, which accompanies the animals to destination. His issuance of the export certificate is based upon his inspection of the animals and his examination of the documents accompanying the shipment.

14. Export Animals, Poultry and Hatching Eggs to Canada

A - Animals. Some special requirements for movement of animals from the United States should be noted:

1. Swine are prohibited entry into Canada from the United States because of certain swine diseases in this country. Therefore, health certificates for swine intended for shipment to Canada should neither be issued nor endorsed.

2. Except for immediate slaughter, all sheep and goats destined to Canada must be inspected and the necessary certificates issued at point of origin by an ARS veterinarian.

3. Cattle for rodeo, or other entertainment purposes, need a valid health certificate for export and reentry into the United States. Diagnostic tests in accordance with export regulations of the Department within 30 days prior to initial movement into Canada will suffice for reentry into the United States within a six-months period during the current rodeo season.

B - Poultry and Hatching Eggs to Canada. This Department does not have regulations applicable to the export shipment of poultry and eggs; therefore, such shipments to Canada are governed by the import regulations of that country.

Canadian authorities have approved a specific certificate (AIQ-35) for poultry and hatching eggs from the United States. These certificates may be obtained from the ARS veterinarian in charge in the State of origin who must also endorse them when completed.

Inspection and certification for poultry and hatching eggs destined to Canada may be done by an accredited veterinarian. A summary of other information necessary to meet Canadian import requirements for poultry is contained on the reverse side of the certificate.

15. Export Animals, Poultry and Hatching Eggs to Mexico

Mexican regulations contain the requirement that a prior permit for livestock, poultry and hatching eggs be obtained from the Ministry of Agriculture, Mexico, D. F., Mexico. They also require that health certificates accompanying such shipments to Mexico be visaed by a Mexican consular officer nearest the point of origin.

16. IMPORTANT

ARS personnel authorized to endorse certificates for export animals and poultry have been instructed not to do so unless:

A - issued by an accredited veterinarian, State veterinarian, or ARS veterinarian

B - properly executed, and

C - there is reason to believe that all statements are accurate and true insofar as can be determined.

SECTION II

INTERNATIONAL MOVEMENT OF ANIMALS

IMPORTS

1. Administration of Regulations

The regulations contained in Part 92, Title 9, Code of Federal Regulations - Importation of Certain Animals and Poultry and Certain

Animal and Poultry Products - and Part 94, Title 9, Code of Federal Regulations - Rinderpest, foot-and-mouth disease, fowl pest (fowl plague), and Newcastle disease (avian pneumoencephalitis): Prohibited and restricted importations are administered by:

Animal Inspection and Quarantine Division of the USDA's
Agricultural Research Service, Washington 25, D. C.

2. Purpose

A - To prevent the introduction of foreign animal diseases into United States.

1. The Department of Agriculture has specific regulations on the importation of certain animals including poultry. These regulations are contained in Parts 92 and 94 of Title 9, Code of Federal Regulations, as shown in paragraph 1.

2. The United States has laws to prevent the introduction of foot-and-mouth disease and rinderpest. There is an increasing awareness of the potential risk of introducing other diseases, such as contagious bovine pleuropneumonia, East Coast fever, heartwater, and many others, particularly the tick-borne diseases. In poultry importations care must be taken to prevent the introduction of fowl plague and the lethal strains of Newcastle disease.

3. Animals Governed by Import Regulations

Cattle, sheep, goats, other ruminants (including animals which chew the cud, such as buffalo, deer, antelopes, camels, and llamas), as well as domestic swine, all varieties of wild hogs, horses, burros, mules, zebras, and poultry (including chickens, ducks, geese, swans, turkeys, pigeons, doves, pheasants, grouse, partridges, quail, guinea fowl, and pea fowl of all ages, and eggs for hatching purposes).

4. Prohibited Imports

A - The Act of June 17, 1930 prohibits the importation of cattle, other domestic ruminants, and swine from any country declared by the Secretary of Agriculture to be infected with foot-and-mouth disease or rinderpest. The only countries of the world where the raising of livestock is significant that are currently considered free of both diseases are: Australia, Canada, Ireland, Mexico, New Zealand, Northern Ireland, Norway, and the United States. These diseases do not exist in Central America or in the islands of the Caribbean area (with the exception of Martinique and Curacao).

B - Cattle are also prohibited entry from any country where contagious bovine pleuropneumonia exists. This presently includes the

importation of cattle from Australia.

C - Because of the presence of fever ticks in Central America and the islands of the Caribbean, cattle cannot meet import regulations.

5. Ports of Entry

To provide for the orderly importation of animals and poultry and for veterinary inspection service, the Department has designated ports of entry -- 16 coastal, 52 along the Canadian border, and 14 along the Mexican border. Importations must be made through designated ports, except that in special cases the Director of the Animal Inspection and Quarantine Division may designate other ports, with the concurrence of Customs.

6. Quarantine Stations

The Department owns and operates a quarantine station in Clifton, New Jersey, for the quarantine of animals and poultry coming through the port of New York. At other ports of entry, when quarantine is required, it is the responsibility of the importer to arrange for quarantine facilities subject to the approval of the port veterinarian.

7. Basic Import Requirements

A - An import permit must be obtained by the importer from the Washington Office of the Animal Inspection and Quarantine Division before animals and poultry are potentially eligible for importation from the country of origin.

(Permits are not required for animals or poultry from Canada, horses from any country, or for ruminants and swine from the seven northern States of Mexico).

B - Certification by a salaried veterinary officer of the national government of the country of origin as to freedom from and exposure to certain diseases.

C - Veterinary inspection at the first port of arrival in the United States.

D - Quarantine, when required, for a minimum period at the port of entry.

8. Inspection at Port of Entry

A - Veterinary examination of the animals or poultry is given by an ARS veterinarian at the port of entry. All animals found to be free from communicable diseases and not to have been exposed thereto within 60 days prior to the offer for importation may be admitted subject to various other provisions.

B - All necessary accompanying certificates, documents, test charts, etc., must be accurate and complete before importation is permitted.

C - Specific animals

1. Domestic ruminants must be accompanied by a health certificate and, when applicable, test chart showing negative tests for tuberculosis and brucellosis.

2. Horses must show freedom from dourine and glanders by certificate and/or blood tests.

3. Dogs subject to the Department's regulations are collie, shepherd, and similar breeds intended for use in the handling of livestock. Such dogs, except from Canada, are examined at the port of entry to determine their freedom from the sheep gid tapeworm, Multiceps multiceps.

4. Wild ruminants and Wild Swine. The law does not prohibit the importation of wild ruminants and wild swine (zoo animals) from foot-and-mouth disease and/or rinderpest infected countries. But rigid requirements have been set up administratively, one of which is that the animals following release from quarantine must be consigned only to a Department approved zoo operating under acceptable governmental supervision.

D - Disinfection Procedures. By regulation, cattle are prohibited entry from any area infested with fever ticks, Boophilus annulatus. The exception is that infested cattle from areas in Mexico may be imported into the State of Texas only, after being freed of such ticks.

Certain other disinfection procedures, of the animals and accompanying equipment and litter, are carried out to further safeguard the livestock industry of this country.

SECTION III

IMPORTATION OF BYPRODUCTS

1. Administration of Regulations

The regulations contained in: Part 94, Title 9, Code of Federal Regulations - Rinderpest, foot-and-mouth disease, fowl pest (fowl plague), and Newcastle disease (avian pneumoencephalitis): Prohibited and restricted importations - Federal law (section 306 (a) of the Act of June 17, 1930) prohibits the importation of fresh, chilled, or frozen beef, veal, mutton, lamb, or pork from any country declared by the Secretary of Agriculture to be infected with foot-and-mouth disease or rinderpest.

Part 95, Title 9, Code of Federal Regulations - Sanitary Control of Animal Byproducts (Except Casings), and Hay and Straw, Offered for Entry into the United States, and -

Part 96, Title 9, Code of Federal Regulations - Restrictions of Importations of Foreign Animal Casings Offered for Entry into the United States - are administered by:

Animal Inspection and Quarantine Division of the USDA's
Agricultural Research Service, Washington 25, D. C.

2. Purpose

Imported meats, animal byproducts, and related materials may be a means of introducing foreign animal diseases into the United States. The Department of Agriculture has regulations governing the importation of such products designed to minimize the risk. These regulations are contained in Parts 94, 95 and 96 of Title 9, Code of Federal Regulations, as shown in paragraph No. 1.

3. Cured and Cooked Meats

A - Cured and cooked meats from foot-and-mouth disease or rinderpest-infected countries are permitted entry, subject to established regulatory procedures. Cured meats, if found upon inspection at the port of entry to be accompanied by proper certification from the country of origin, may be permitted to go forward under seal to federally inspected establishments, provided the meat is packed in substantial, tight, leak-proof containers. There the meat is processed

by heat sterilization in hermetically sealed containers or by heating to an internal temperature of 156° F. or higher under the supervision of an employee of the Meat Inspection Division.

B - Certification by the national meat inspection service of the country of origin must show:

1. that the meat is boneless,
2. that it was held in an unfrozen condition for 3 days immediately following slaughter of the animals, and -
3. that it is thoroughly cured or cooked.

4. Animal Byproducts

Shipments of import animal byproducts must be identified as to the country of origin.

In addition, the conditions under which animal byproducts from foot-and-mouth-disease or rinderpest-infected countries are permitted entry, are based upon inspection at the port of entry by an employee of the Department.

Animal byproducts (except bones and bone meal) are permitted unrestricted entry from countries not declared to be infected with foot-and-mouth disease or rinderpest.

A - Hides and Skins

1. Hides and skins are permitted unrestricted entry when:

- (a) they originate in countries not infected with foot-and-mouth disease or rinderpest,
- (b) they are hard-dried,
- (c) shipments are accompanied by certification showing that they were derived from animals slaughtered under approved national government inspection,
- (d) inspection shows that they were pickled in a salt solution containing mineral acid, and -
- (e) they are found upon inspection to have been properly treated with lime.

2. Imported hides and skins that do not meet any one of these conditions must be consigned to approved tanneries for disinfection.

B - Wool, Hair, and Bristles. Bloodstained wool, hair or bristles are prohibited. If reasonably free from animal manure and dung locks or having been scoured, washed, or dyed, shipments from foot-and-mouth disease or rinderpest-infected countries are permitted unrestricted entry; otherwise, they must be consigned to an approved establishment for processing.

C - Bones, Horns, Hoofs, and Bone Meal. Regulations governing importation of bone and bone meal are intended to guard against the introduction of anthrax.

All bones, with the exception of trophies, are restricted and must be consigned to approved establishments for storage and processing. Granulated or crushed bone, or bone in any form other than steamed or degelatinized bone meal, is restricted. Bone meal, for unrestricted entry, to be used as fertilizer or as feed for domestic animals, must have the physical characteristics of steamed or degelatinized bone meal (normally derived from the manufacture of glue or gelatin). Such bone meal is finely ground, is nearly white, and is free from objectionable odor. Steamed or degelatinized bone meal, eligible for unrestricted entry, should contain not more than 2 percent of nitrogen and not less than 25 percent of phosphoric acid as P_2O_5 .

D - Animal Glands from foot-and-mouth disease - or rinderpest infected countries are restricted, and must be shipped in tight containers to approved pharmaceutical establishments for processing in a manner previously agreed to by the Division.

E - Animal Casings are not considered to be meat or a meat food product and are not subject to the regulations of the Meat Inspection Division. When not accompanied by proper foreign certification to the effect that they are derived from healthy animals, the Animal Inspection and Quarantine Division requires disinfection before release for manufacturing purposes. Dried casings are permitted unrestricted entry.

F - Blood Meal, Tankage, and Similar Products for Use as Fertilizer or Animal Feed. Tankage, and similar products from countries where rinderpest or foot-and-mouth disease is known to exist may be permitted entry into this country for use as fertilizer or animal feed provided such products have the physical characteristics of a fully processed produce, prepared by tanking under live steam or dry rendering. Such tankage containing bone incident to its production, either in bulk or in the form of greaves cakes, should be ground or crushed to the extent that pieces of bone do not exceed finger size and shall be accompanied by an analysis certificate from a reputable testing

agency indicated BPL (bone phosphate of lime) content not to exceed 35 percent. If upon inspection at the port of entry the tankage is found to be in compliance with the above requirements, it may then be permitted entry without further restrictions. Since tankage meeting these requirements when manufactured in the usual trade manner is heated to temperatures far in excess of 156° F., the consular certificate mentioned in the regulations will not be necessary.

SECTION IV

IMPORT AND INTERSTATE MOVEMENT OF ORGANISMS AND VECTORS

1. Authority

Regulations promulgated under the authority of the Act of Congress approved February 2, 1903, provide that no organisms or vectors shall be imported into the United States or transported interstate without a permit issued by the Secretary of Agriculture.

2. Definitions

Organisms are defined as cultures or collections of organisms or their derivatives, which may introduce or disseminate contagious or infectious disease of animals (including poultry).

Vectors are defined as animals such as mice, pigeons, guinea pigs, rats, ferrets, rabbits, chickens, dogs, and the like that have been treated or inoculated with organisms, or are diseased or infected with a contagious, infectious, or communicable disease of animals or poultry or that have been exposed to such disease.

3. General Policy

While the Animal Inspection and Quarantine Division has a responsibility in safeguarding livestock and poultry in the prevention and control of disease of domestic and foreign origin, it is not the intention to interfere with the normal shipment of specimens to diagnostic laboratories, or to the transfer of the common microorganisms or viruses indigenous to this country between research workers and laboratories. The regulations have been so interpreted for a number of years.

Accordingly, U. S. veterinary permits are required:

A - in advance, for the importation into the United States of organisms and vectors;

B - for the further transportation of imported organisms and vectors; and

C - for the interstate transportation of animal pathogens and vectors that may cause disease of a severe, unusual, or contagious nature; or belong to the class of diseases, the distribution and incidence of which are not well known; or that may cause disease outbreaks. Examples include the viruses and organisms that cause Venezuelan equine encephalomyelitis, Asiatic or other highly virulent strains of Newcastle disease, Plasmodium berghei, bluetongue, scrapie vesicular diseases, and others.

Permits for interstate transportation are not required for organisms, vectors, or viruses that cause the more prevalent and common animal diseases found in this country. Examples include routine specimens for laboratory examination that contain Pasteurella, Salmonella, or Clostridia, and the viruses that cause Newcastle disease of mild virulence isolated in this country, fowl pox, hog cholera, swine influenza, and canine distemper.

VETERINARY BIOLOGICS

1. Inspection

Inspection of biological products is conducted by Federal veterinarians and laymen assigned to assist veterinarians at establishments throughout the United States. There are 11 stations where inspectors in charge are stationed. Inspection of biological products is conducted in three ways.

A - One method consists of actual supervision of operations in the establishments as in the plants producing anti-hog-cholera serum and hog-cholera virus. Veterinarians assisted by laymen have complete charge of the establishment and no operations incident to production may be carried out unless a Division representative is present. These men have in their possession keys for all Government locks and all of the products are locked up or sealed at the time the inspectors leave.

B - The second method entails the sampling of each batch of a product, submitting these representative samples for testing, and the release of products after satisfactory tests. Products that are unsatisfactory by Division tests are destroyed under the supervision of an inspector. This kind of inspection is usually made of products used in national programs, such as the brucellosis eradication and pullorum testing programs.

C - The third type of inspection could be termed a "spot check" system, which is used for most licensed biological products. Veterinarians visit the plants (at unannounced times) and may inspect any product at any stage of production or they may view the complete production cycle and study reports and records of production and testing. Test reports for most products, together with production records, which indicate the quantity of product placed in containers of a given number and size, are furnished to inspectors as soon as they are completed.

Licensees are required by regulation to retain representative samples of every batch of product involved. In case of a complaint from a user, these samples are tested to determine their efficacy. If an opened sample is forwarded from a complainant, tests are carried out on both samples in duplicate to determine whether any deterioration has occurred. In most instances, the licensees are responsible for all testing. They are required to furnish test reports to the Division. Actual check testing by the Division is conducted only when deemed necessary.

2. Licensing

The Animal Inspection and Quarantine Division administers the Virus-Serum-Toxin Law of March 4, 1913, which provides that

A - no virus, serum, toxin, or analogous product shall be produced and marketed interstate unless it is produced under a United States veterinary license,

B - no virus, serum, toxin, or analogous product shall be marketed that is worthless, dangerous, contaminated, or harmful, and conversely, that these products

(1) must have merit, and

(2) serve the purpose for which they are intended.

The rules and regulations specify production procedures for viruses, serums, toxins, and analogous products, and spell out in detail the methods used for the production of anti-hog-cholera serum and hog-cholera virus. Regulations are less detailed and more general for all other products. Preparations such as vaccines, serums, bacterins, diagnostics, and the like are usually a result of research conducted by individual firms and are produced according to their own methods of production, which must be acceptable to the Division.

There is an established procedure for the licensing of veterinary biological products. The applicant must provide the Division with:

A - An application for a license for each biological product, signed by an officer of the firm.

B - Blueprints of laboratories and plot plans showing the location of buildings. The blueprints are reviewed to determine that adequate facilities are available for producing safe veterinary biologics.

C - Detailed procedures for production and testing. The method of production must be in accord with established procedures and the product must be produced and tested in such a way as to assure safe and potent biologics. The Division has testing standards for various veterinary biologics. The applicant must include in his outline of production, testing procedures that meet or exceed minimum testing requirements. These outlines of production are reviewed by the Division and must be found acceptable.

D - Copies of all labels and circulars to accompany licensed biologics. Labels and circulars are reviewed and approved by the Division to insure that they show no false or misleading information or claims.

E - Research data to substantiate the safety and worth of the biologics. The data may include laboratory studies, field studies, and citations of technical literature.

F - Methods and results of tests on experimental products.

G - Samples of completed products and cultures of organisms used in their preparation, for examination and testing.

Inspection is mandatory after a plant is licensed.

ANIMAL DISEASE ERADICATION DIVISION

DISEASE CONTROL AND ERADICATION PROGRAMS

Most of the work of the accredited veterinarian is with State-Federal programs for the prevention, control and eradication of animal diseases. It includes inspection, testing, vaccination, tagging and branding, keeping necessary records, issuing certificates, and advising owners on management practices that should prevent occurrence or recurrence of disease. Current programs and the participation of the accredited veterinarian in carrying them out are given below.

BRUCELLOSIS

1. Brucellosis Eradication Campaign

The State-Federal program which began in 1934 was based entirely on test and elimination of reactors to the blood serum agglutination test. By this method alone the infection rate was reduced from 11.5 percent in 1935 to 2.5 percent in 1939. However, it was evident that additional measures would be necessary if complete eradication was to be obtained.

In 1941 Strain 19 vaccine was approved for use in the program. It has been demonstrated since that time that the proper use of Strain 19 in vaccinating calves of the proper ages is a valuable adjunct to the eradication program. However, its limitations must be kept in mind.

Progress in the eradication effort has been aided by the adoption of the Uniform Methods and Rules in 1947 by the United States Livestock Sanitary Association and their approval by the U. S. Department of Agriculture. With minor amendments made during subsequent years the Methods and Rules have served in promoting the eradication project throughout the country.

In 1952 the use of the ring test was approved and became a part of the recommended procedures. Through its use, large numbers of dairy-type herds can be screened rapidly and economically for presumptive evidence of *Brucella* infection. This makes possible a concentration of eradication efforts on herds that are probably infected.

The importance of carrying out the above-mentioned procedures on an area basis cannot be overemphasized. The goal of area, State, and nationwide certification can only be obtained when recommended procedures are uniformly applied to all herds within all areas. The

The certification of areas is an important intermediate goal in the overall program to eradicate brucellosis. Without organized area effort and participation of all herd owners, veterinarians and others in the program, gains already made will be difficult to maintain and the final goal of complete eradication of brucellosis will be difficult if not impossible to attain.

Of importance, too, in protecting gains already made and to aid in further progress of the eradication effort, is the necessity of restricting movements of cattle. It is important, therefore, that all veterinarians be thoroughly informed concerning interstate and intrastate regulations governing the movement of cattle and that they issue certificates for such movement in strict compliance with applicable regulations.

2. Services of Accredited Veterinarians

A majority of veterinary practitioners are assisting in the brucellosis program. The accredited veterinarian should acquire technical and administrative information on the expanded brucellosis eradication program. He should be able to:

A. Accurately inform herd owners about the program and about the disease.

B. Collect blood samples from herds promptly when requested to do so by owners and authorized or directed to do so by officials.

C. Accurately complete the test record chart, including identification of animals, pertinent history, and vaccination record.

D. Give prompt attention to tagging, branding, and appraisal of reactors. The completion of all forms is of great importance where indemnity is paid. Accurate instructions must be given the owner concerning disposal of reactors, shipping permits required, cleaning and disinfection of the premises, quarantine restrictions, indemnity payments, and management practices aimed at avoiding appearance or recurrence of the disease.

E. Clean and disinfect boots and equipment.

F. Retest infected herds promptly. They should be retested 30 to 60 days after removal of reactors. The owner's initial investment in disease control and eradication may be lost without a prompt retest.

G. Other responsibilities. The accredited veterinarian also has certain responsibilities to the program. He should

1. accept his full share of the program workload or area assignment, consistent with what he can promptly complete.
2. keep himself thoroughly informed about the program, including technical and professional details, administrative functions, laws, rules and regulations, including those covering the interstate and intrastate movement of cattle.
3. perform the work in accordance with approved procedures, laws, regulations, and techniques.
4. make reports legibly, accurately, and promptly.

3. Brucellosis Testing

A. Collect blood aseptically, filling tubes about one-half full, being careful to minimize the danger of contamination. Allow to stand at room temperature until firmly clotted, which may require 2 or 3 hours. After this the sample should be kept cold but not allowed to freeze.

B. See that each tube is plainly labeled, securely corked, and carefully packed to prevent breakage. Each accredited veterinarian should be designated by a serial letter or letters assigned by the State or Federal livestock sanitary official. This letter should appear on the tube of each sample along with the tube number.

C. The test chart should list the number of animals bled and a history of each animal, including tube, tag or tattoo number, age, sex, breed, and symptoms if evident. When a new tag is applied, the chart should show whether it is for (1) an initial test, (2) replacement of a lost tag, or (3) natural increase.

D. A separate needle should be used for each animal. Needles should be cleaned and disinfected before re-use, preferably by boiling at the close of each day's work. They should be kept in a sterile container to prevent contamination. If nose tongs are used, they should be disinfected after each animal. The use of a rope halter is recommended when practical. Footwear should be cleaned and disinfected after testing each herd.

E. Tables 1 and 2 should be used as a guide in classifying reactors to the agglutination test, except as indicated in paragraph 6.

Table 1 - Interpretation of Reactions in Officially Calf-Vaccinated Cattle

Dilutions			:	Diagnosis
			:	
1:50	1:100	1:200	:	
+	-	-	:	Negative
+	I	-	:	Suspect
+	+	-	:	Suspect
+	+	I	:	Suspect
+	+	+	:	Reactor
		or higher	:	

Table 2 - Interpretation of Reactions in Nonvaccinated Cattle

Dilutions			:	Diagnosis
			:	
1:50	1:100	1:200	:	
-	-	-	:	Negative
I	-	-	:	Suspect
+	-	-	:	Suspect
+	I	-	:	Suspect
+	+	-	:	Reactor
	Or higher		:	

F. Animals classed as suspects by the blood-serum agglutination test, which have a history of having aborted, may be designated reactors by the veterinarian taking the blood samples if they are from a herd containing reactors and if approved by the Veterinarian-in-Charge. Such reactors are eligible for indemnity if State and Federal indemnity is paid.

4. The Brucellosis Ring Test (BRT)

BRT is a modified tube agglutination test applied to milk or cream from a dairy herd. It identifies herds suspected of having brucellosis with only 3-5 cc. of a composite sample taken from milk cans or bulk tanks. If no titers are present, it is not necessary to test cattle in that herd. This test saves the cost of blood testing approximately 80 percent of the dairy cattle. All titers found by this test do not indicate infection but the test does indicate herds that are most likely to be infected.

SCRAPIE

Scrapie was first diagnosed in the United States in Michigan in 1947. Since that time, the disease has been diagnosed in 51 additional flocks in the States of Alabama, California, Connecticut, Georgia, Illinois, Indiana, Iowa, Missouri, New York, North Carolina, Ohio, Oregon, Tennessee, Texas, Virginia, and Wisconsin. Two of the infected flocks were of the Cheviot breed, the remainder were Suffolks.

The State-Federal cooperative eradication program is based on the slaughter of all infected and exposed sheep and goats. Flocks that have included exposed sheep and goats are held under surveillance for a period of 36 months or longer, owing to the extremely long incubation period of the disease. During the period of surveillance or quarantine these flocks are inspected every 6 months, or oftener if necessary.

The onset of scrapie is insidious and only an experienced observer may notice the earliest symptoms. For this reason the veterinarian must become particularly adept in recognizing these symptoms. He should also be prepared to explain the symptoms and characteristics of the disease in detail to the owner, who often reports unusual behavior of his sheep to his veterinarian.

The diagnosis of scrapie is based on symptoms, history, spread, and histopathological findings. The disease appears most frequently in sheep 2 to 3½ years old and seldom in sheep under 18 months of age. A clinical diagnosis of scrapie is confirmed by demonstrating vacuoles in neurons of the medulla on histological examination. The disease should be differentiated from listeriosis, Aujeszky's disease, rabies, pregnancy toxemia, and scabies.

When scrapie is suspected, livestock sanitary officials should be notified immediately. The suspected animal should not be slaughtered until regulatory officials have had an opportunity to observe the clinical symptoms and have determined that the case is advanced sufficiently that a satisfactory specimen of brain tissue can be obtained for laboratory examination.

It is very important to determine the origin of infection and to locate animals moved from infected flocks.

SCABIES

Animals affected with scabies are prohibited by Federal regulations from moving in interstate traffic. Each State also has regulations concerning the handling of infested animals and movements from affected herds and flocks.

Scabies is spread mainly by introducing infested animals into herds or flocks by purchases made through market centers, sales rings, livestock shows, and stockyards. It continues to be a problem because of undetected and untreated reservoirs of infestation. Advanced cases are easily identified. But the atypical early case with little loss of fleece and limited scratching is difficult to detect.

Veterinarians should have a hand lens for studying external parasites and should be prepared to take skin scrapings when scabies is suspected. Where there is a loss of fleece, mites are more commonly found along the periphery of the denuded area. Mites are not usually active during the summer months. Livestock sanitary officials should be notified immediately when a skin ailment is suspected to be scabies.

Scabies usually follows a customary pattern of spread. It is comparatively easy to eradicate with dips that are available, if all animals in infested and exposed herds are properly dipped and held in the dip at least 1 minute. Veterinarians are frequently called upon to inspect and dip sheep and cattle for scabies. They also issue certificates needed for interstate movement or to comply with state-of-destination requirements.

It is very important to determine the origin of infestation and to find animals moved from infested and exposed herds in order to treat all sources of infestation.

TICK FEVER

The cattle fever tick, Boophilus annulatus, has been eradicated from the United States, except for a narrow buffer zone in southern Texas along the border between the United States and Mexico. Reinfestation occurs there from time to time, because the adjacent area of Mexico is badly infested.

The Federal-State cooperative eradication program, which includes inspection, quarantine, and dipping, is now confined to the buffer strip in southern Texas and to the Commonwealth of Puerto Rico, where an active eradication program, under way for some years, is nearing completion. There are occasional reinfestations of the vector in California, introduced from Mexico.

The cattle fever tick (B. annulatus) may also be carried by equines, and the tropical variety (B. annulatus var. microplus), which has been found in Puerto Rico, Florida, and Texas, may be carried by sheep and goats as well as equines. Additional hosts, such as deer, have created local problems in the tick eradication program but have not prevented complete elimination of the vector.

Veterinarians should be alert for ticks of Boophilus species, not only on animals in areas along the Mexican border but on routine inspections at concentration points and when health certificates of various types are to be issued.

When it is suspected that such ticks may be present, livestock sanitary officials should be notified immediately and specimens should be collected for laboratory identification.

In the United States the only recognized procedure for treating animals to destroy the cattle fever tick is by dipping them at 14-day intervals in an arsenical solution containing 0.22 percent of arsenious oxide. The strength of the dipping solution is determined by a chemical test before each use.

TUBERCULOSIS

In 1940 the last county in the United States was declared a modified accredited area. This means that the degree of tuberculosis infection in each county did not exceed 0.5 percent of the cattle in the county as determined by tuberculin tests. Accredited veterinarians have contributed significantly to lowering the incidence of the disease from 5 percent in 1917 to 0.156 in 1957. But little infection is not a satisfactory conclusion. Tuberculosis can be a threat to the nation's livestock as long as there is a remnant of infection in the country.

In order for the accredited veterinarian to fulfill his responsibilities in dealing with this disease and cooperating in the eradication program, he should

1. keep himself thoroughly informed about the program, including the technical and professional details, administrative functions, rules and regulations.
2. perform his work for the program in accordance with approved procedures, laws, regulations, and techniques.
3. use his best technical skill in the application and interpretation of the tuberculin test.
4. because the incidence of tuberculosis is low, many students have not seen reactors. State and Federal veterinarians welcome the opportunity to assist accredited veterinarians in the application and interpretation of test results.
5. make sure that the animal is properly restrained before making each intradermal injection.
6. accurately inform herd owners about the disease and the program.
7. accurately and legibly complete each test record, including identification and pertinent history, and promptly forward the record to State-Federal livestock sanitary officials.
8. instruct the owner to isolate reactors as soon as they are found.
9. tag and brand all reactors immediately.

10. acquaint himself with the procedures governing the payment of indemnities in his State.
11. when issuing permits for the intra and interstate movement of reactors for slaughter, carefully follow instructions covering such movements.
12. instruct the owner to follow recommended procedures for the cleaning and disinfection of premises after the removal of reactors.

VESICULAR EXANTHEMA

Vesicular exanthema was first reported in California during 1932, where it was first thought to be foot-and-mouth disease. Beginning in 1952, the disease appeared outside California and spread widely, invading 41 other States and the District of Columbia. An eradication campaign is being waged against the disease. Steps are being taken to eradicate the disease because

1. it causes considerable economic losses to producers and has drastic effects on markets and commerce.
2. if permitted to become established, it might, like other virus diseases, now and then become excessively virulent and cause greater damage and loss to the swine industry.
3. since the disease cannot be visually distinguished from foot-and-mouth disease it might at any time mask an outbreak of this disease.

Laboratory and animal inoculation tests are used to differentiate this from other vesicular diseases - foot-and-mouth and vesicular stomatitis. These tests should be done only by a specially trained diagnostician assigned to each individual case by the State or Federal livestock sanitary official. Eradication measures include inspection, quarantine, slaughter, and special processing of swine found infected and exposed, the cleaning and disinfection of infected premises and facilities before restocking, controlling the intrastate and interstate movement of raw-garbage-fed swine, and requiring that all garbage fed to swine be heat treated prior to feeding it. (Special processing of swine consists of heat treating the carcass and offal to temperatures that destroy the virus.)

Quite early in the campaign, raw garbage fed to hogs was recognized as the commonest carrier of the disease, and many States began to pass legislation and issue regulations that garbage fed to hogs must be cooked. Emphasis in most States is placed on frequent inspection and enforcement of laws and regulations. Generally State laws require that garbage feeders must be licensed. Their premises must be inspected to see that garbage is boiled for 30 minutes before it is fed to hogs and that feeding is carried on under sanitary conditions.

Federal regulations limit the movement in interstate commerce of hogs fed raw garbage to those destined to approved establishments for special processing under special permit and require the cleaning and disinfection of carriers and facilities used by infected or exposed swine and raw-garbage-fed swine. Hogs fed cooked garbage can move without restrictions.

State laws and regulations in many States impose the same or similar restrictions on animals and carriers moving intrastate.

The accredited veterinarian should be aware of the interstate restriction on hogs that are fed raw garbage. He should acquire a background on the eradication program in order to advise clients who might be affected by the program. He should report immediately any vesicular condition he may encounter, in order that differential diagnosis can be made and the necessary sanitary measures taken.

OTHER DISEASE CONTROL ACTIVITIES

The U. S. Department of Agriculture cooperates with the States in investigating, diagnosing, reporting, and recommending procedures for the control of a number of other diseases of livestock and poultry, including:

1. Anaplasmosis

Surveys to determine incidence of the disease and experimental field studies to find control methods suited to the region.

2. Anthrax

Assists States in diagnosing the condition and keeps abreast of its incidence and significance on the livestock industry.

3. Bluetongue

Bluetongue has probably been present in the United States for a number of years. It was first mentioned in Texas in 1948 under the name "soremuzzle." Since then the clinical diagnosis of bluetongue in California, Arizona, Utah, Colorado, New Mexico, Texas, Oklahoma, Missouri, Kansas, Nebraska, and Oregon has been confirmed by laboratory studies. Cases of the disease in other States have been suspected.

When bluetongue is suspected, livestock sanitary officials should be notified. They will make arrangements with the Animal Disease Eradication Laboratory at Denver, Colorado for inoculation tests. This test is made with blood collected from animals in the early stages of the disease (preferably those with high temperatures). This is the most satisfactory means of confirming a clinical diagnosis of bluetongue.

Control measures include vaccination in areas where the disease is endemic, and protection against the insect vector.

4. Dourine

Dourine, or suspected cases of it, should be reported promptly to livestock sanitary authorities. Veterinarians should be prepared to obtain blood samples from suspected equines and to send serum samples to the Department of Agriculture in Washington for diagnosis by the complement-fixation test.

5. Equine Encephalomyelitis

Equine encephalomyelitis should be reported to State Federal livestock sanitary authorities.

6. Hog Cholera, Newcastle Disease

Hog cholera, Newcastle disease, and other domestic diseases should be reported when they exhibit unusual virulence. Various States may require the reporting of other diseases.

7. Leptospirosis

Leptospirosis is being surveyed to determine incidence of the disease.

8. Mucosal Disease Complex

Mucosal disease complex (mucosal disease, rhinotracheitis, virus diarrhea, Indiana, and virus diarrhea, New York) should be reported to State-Federal authorities. This group of diseases is considered to be new in the United States. Because of its economic importance, and because of its similarity to rinderpest, it constitutes a serious problem.

9. Psittacosis or Ornithosis

Psittacosis or ornithosis, or suspected cases of it, should be reported. A positive diagnosis should be based on isolation of the viral agent by laboratory means. Federal regulations prohibit the interstate movement of affected poultry.

10. Pullorum Disease and Fowl Typhoid

Pullorum disease and fowl typhoid are the concern of the National Poultry Improvement Plan and the National Turkey Improvement Plan. Accredited veterinarians should acquaint themselves with these plans and be prepared to issue certifications for the movement of eggs and poultry.

11. Vesicular Conditions, Unknown and Foreign Diseases

Vesicular conditions, unknown and foreign diseases should be reported promptly and without fail. Foot-and-mouth disease, vesicular stomatitis, mycotic stomatitis, necrotic stomatitis, and vesicular exanthema cannot be accurately differentiated by clinical observations alone. Increased world traffic by air and surface routes multiplies the danger of foreign diseases entering the country. A State-Federal emergency disease eradication organization has been established in each State to handle outbreaks of foreign diseases.

PREPARING SPECIMENS FOR THE LABORATORY

The following suggestions are presented as a guide in preparing diagnostic materials except that suspected vesicular specimens should never be shipped to laboratories. When sending material to a specific laboratory, methods suitable to that laboratory should be used.

A. Glassware in which specimens are sent should be scrupulously clean. Specimens for bacteriological examination must be submitted in sterile containers.

B. Avoid all possible means of contamination. Tissue submitted for examination under suspicion of a particular disease should be so labeled.

C. Specimens from an organ, body fluids, cyst, or abscess for culture can be obtained by using a sterile swab. Aseptic techniques are essential in saturating the swab and immediately replacing it in the sterile test tube from which it was taken. A small amount of sterile saline solution can be added to the tube to prevent the swab from drying. No chemical preservative should be added to specimens submitted for bacteriological examination. Refrigeration is the best preservative. Specimens showing lesions are best.

D. The species of the animal from which blood samples are taken should be indicated.

E. Preparation of blood smears requires clean glass slides. Slides can be properly cleaned by washing them in 95 percent alcohol. The smeared surface must be protected on its way to the laboratory.

F. Tissues for histopathological examination should be fixed as promptly as possible after death. Tissues from organs should be cut perpendicular to the surface to expose their anatomic structure. The specimen should include affected and normal tissue to identify it and show the character of spread. Specimens should not be folded or bent by the containers in which they are fixed. Wide-mouthed bottles should be used to facilitate removal and prevent damage of tissue. It is important to provide 10 times as much fixing fluid as tissue. Tissue slices for fixing should be no thicker than $\frac{1}{2}$ inch but may be longer and broader, provided there is adequate fixative. Intestinal mucosa and organs should not be soaked or washed in water before removal of the specimen block.

G. Fixing solutions should be kept cool. Formaldehyde is the most versatile fixative. Best results are obtained if the formalin is diluted in buffered physiological saline or distilled water. Tissue fixed in 10-percent aqueous formalin (9 parts water, 1 part formalin) should be fixed for 24 hours, then transferred to fresh 10-percent formalin or formalin-saline in which they can be left indefinitely. The addition of 2-percent sodium acetate to aqueous 10-percent formalin is an excellent and practical method to keep the pH at neutrality, which is essential for good results in staining. Alcohol (70 to 80 percent) alone has limited use as a fixing fluid. It hardens and dehydrates tissues while making them unsuitable for histologic preparation.

H. Materials submitted for possible virus isolation should be freshly obtained from the early acute, febrile phase of the illness. In general, all specimens for virus isolation must be frozen before transport. If freezing of specimens is entirely impossible, specimens may be placed in buffered glycerine for transport. The latter is a substitute measure. When specimens can be delivered to a laboratory within 3 hours, it may not be necessary to freeze them.

I. Information or history of the case that accompanies the specimens to the laboratory is essential and extremely useful in helping to establish the diagnosis. Information accompanying the laboratory specimen should contain the following: A description of the animal; breed, sex, peculiarities; incidence of the disease in the area; number of animals showing symptoms and their ages; number of animals dead; dates of first losses and of subsequent losses; the symptoms and their duration; the condition of the eyes, feet and skin; a description of the spread of the infection, if in a flock or herd; the type of preservative used for specimens; and return address.

J. Frozen or diseased specimens should be forwarded by air or railway express; they cannot be shipped by mail. Other specimens preserved in fluid media may be sent by mail. Sturdy containers not over 3 inches in diameter should be used. All shipping containers should be carefully and legibly labeled inside and out. Postal regulations require that all specimens be packaged in leak-proof containers well wrapped with absorbent material, such as cotton, paper, or sawdust, that will absorb the contents completely if the container is broken. Packages should be labeled to show that they contain a laboratory specimen. Specimens should not be shipped just before a weekend or holiday. Postal authorities should be consulted about regulations before preparing specimens for shipment by parcel post.

RECOMMENDED DISINFECTANTS

To prevent the spread of livestock diseases, farmers, veterinarians, and truckers should provide for the cleaning, washing, and disinfection of trucks and equipment. The thorough cleaning and disinfecting of infected premises is an essential measure in any communicable disease eradication program.

1. Recommended Spray Mixtures

Disinfectant	Percent Solution	Mixtures	Disease
Cresylic (USDA Approved marked on can)	4	1 cup to 2 gal. water	Brucellosis Hog cholera Shipping fever Swine erysipelas Tuberculosis
Sal soda	10½	13½ oz. can to 1 gal. of water	Foot-and-mouth disease Vesicular exanthema
Sodium carbonate (Soda ash)	4	1 lb. to 3 gal. water	Foot-and-mouth disease Vesicular exanthema
Sodium hydroxide: (Lye)	2	13½ oz. can to 5 gal. water	Foot-and-mouth disease Vesicular exanthema
Sodium ortho- phenylphenate (USDA Approved)		1 lb. to 12 gal. water	Brucellosis Tuberculosis
Sodium hydroxide: (Lye)	5	5 (13½ oz.) cans to 10 gal. water	Anthrax Blackleg

INTERSTATE MOVEMENT OF LIVESTOCK

Accredited veterinarians have a number of functions dealing with the interstate movement of animals and poultry. They include:

A. Issuing certificates attesting to the health of animals to be moved interstate according to Federal regulations.

B. Providing veterinary inspection at yards specifically approved for the purpose of handling the interstate movement of livestock.

C. Testing, dipping, and vaccinating animals at some public stockyards.

D. Inspecting animals for compliance with Federal brucellosis regulations at stockyards specifically approved for this purpose.

E. Testing animals and issuing certificates of animal health to comply with regulations of the State of destination.

The intrastate movement of livestock is, of course, controlled by State laws and regulations. Practically all States have health requirements governing the admission of animals from other States and the movement of livestock within the State. Accredited veterinarians should familiarize themselves with State and Federal regulations on livestock movements. Certificates issued governing movements of livestock must be clear, legible, and accurate.

